

What is claimed is:

1. A valve deactivator assembly for selectively coupling the reciprocal motion of a cam follower to a valve in an internal combustion engine, comprising:

5 an outer body member defining a longitudinal bore, a groove formed in an inner wall of said longitudinal bore and a transverse bore intersecting said longitudinal bore;

an inner body member arranged for axial movement in said longitudinal bore between an extended position and a collapsed position
10 relative to said outer body member;

a piston disposed in said transverse bore for radial movement in response to fluid pressure, said piston having an inner end and an outer end exposed to said fluid pressure;

a latch support arranged in said longitudinal bore, said latch
15 support being axially moveable and biased toward said inner body member;

a latch member disposed in said longitudinal bore intermediate said latch support and said inner body member and having an actuated surface and a shoulder configured to engage said groove;

20 wherein said piston moves radially inwardly in response to fluid pressure of a pre-determined magnitude at said outer end, said piston inner end bearing on said latch member actuated surface to move said latch member from a latched position in which said shoulder is engaged with said groove to an unlatched position in which said shoulder is
25 radially inward of and disengaged from said groove, said latch member in said latched position rigidly supporting said inner body member in said extended position and said latch member in said unlatched position allowing said inner body member, latch member and latch support to

move axially into said longitudinal bore past said circumferential groove into said collapsed position.

2. The valve deactivator assembly of claim 1, wherein said longitudinal bore includes an axial slot communicating with said transverse bore and configured to guide said latch member during movement between said extended and collapsed positions and prevent rotation of said latch member relative to said outer body member.
3. The valve deactivator assembly of claim 1, wherein said piston outer end is generally spherically shaped.
4. The valve deactivator assembly of claim 1, comprising a second piston and second latch member diametrically opposed to said piston and latch member and substantially identical thereto and a compressed spring biasing said latch member and second latch member radially outwardly.
5. The valve deactivator assembly of claim 1, wherein said inner body member includes an outside surface and one of said latch member actuated surface or inner body outside surface is in contact with said piston inner end when said latch member is in said unlatched position.
6. The valve deactivator assembly of claim 1, comprising a stop arranged to limit radially inward movement of said latch member.
7. The valve deactivator assembly of claim 1, wherein said transverse bore is generally circular and has a diameter, said piston is configured for close sliding reception in said transverse bore, and said

diameter is selected so that said piston generates a pre-determined unlatching force when exposed to said pre-determined magnitude of fluid pressure.

5 8. The valve deactivator assembly of claim 6, wherein said stop is located on either of said inner body member or said latch support or both said inner body member and said latch support.

9. The valve deactivator assembly of claim 1, wherein said inner
10 body member includes a hydraulic lash adjuster.

10. The valve deactivator assembly of claim 1, wherein said groove includes a latching surface substantially perpendicular to said longitudinal groove and said shoulder engages said latching surface at a plurality of
15 angularly spaced locations.

11. An improved valve deactivator assembly for selectively coupling the reciprocal motion of a cam follower to a valve in an internal combustion engine, said valve deactivation assembly including:

20 an outer body member defining a longitudinal bore;
 an inner body member axially moveable within said outer body member;

 a spring biasing said inner body member toward an axially extended position relative to said outer body member;

25 a latch assembly disposed between said spring and said inner body member, said latch assembly including a radially moveable latch member biased toward a latched position in which said latch member rigidly supports said inner body member in said extended position; and

a source of pressurized fluid operable to move said latch member to an unlatched position, wherein the improvement comprises:

5 a piston having an outer end exposed to said pressurized fluid and an inner end adjacent said latch member, said piston delivering an unlatching force from said pressurized fluid to move said latch member to said unlatched position,

wherein said latch member in said unlatched position permits said inner body member and latch member to collapse into said outer body member past said piston.

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12. The improved valve deactivator assembly of claim 11, wherein said piston inner end remains in sliding contact with said latch member or said lower body member during said axial movement.

15 13. The improved valve deactivator assembly of claim 11, comprising a second piston, a second latch member diametrically opposed to said piston and latch member and substantially identical thereto and a compressed spring biasing said latch member and second latch member radially outwardly toward said latched position.

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14. The improved valve deactivator assembly of claim 11, wherein said longitudinal bore includes an axial slot configured to guide said latch member during axial movement and prevent rotation of said latch member relative to said outer body member.

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15. The improved valve deactivator assembly of claim 11, wherein said piston outer end is generally spherically shaped.

16. The improved valve deactivator assembly of claim 11, wherein said inner body member includes a hydraulic lash adjuster.

17. The improved valve deactivator assembly of claim 11, comprising
5 a stop arranged to limit radially inward movement of said latch member.

18. The improved valve deactivator assembly of claim 17, wherein said stop is located on either of said inner body member or said latch support or both said inner body member and said latch support.

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19. The improved valve deactivator assembly of claim 11, wherein said longitudinal bore defines a circumferential latching surface substantially perpendicular to said longitudinal groove and said shoulder engages said latching surface at a plurality of angularly spaced locations.

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20. The improved valve deactivator assembly of claim 13, wherein said longitudinal bore defines a circumferential latching surface substantially perpendicular to said longitudinal groove and said shoulders engage said latching surface at a plurality of angularly spaced locations.